Columbia County Central Laboratory

P.O. Box 204660
Martinez, GA 30917

4327 Evans To Locks Rd
Evans GA 30809

Phone: (706)-868-3460 Fax: (706)-868-3473

Well Disinfection Using Laundry Bleach

Water and Sewerage System

This information is adapted from "Well Disinfection Using Laundry Bleach," published by the University of Tennessee Agricultural Extension Service, and written by Timothy N. Burcham, Assistant Professor, and C. Roland Mote, Professor, Agricultural Engineering.

Introduction

If you use a private water supply (well), and the water has tested positive for Total Coliform Bacteria, Then you should clean and disinfect the well with a treatment that is often called "shock chlorination." It can be done using ordinary household laundry bleach. Laundry bleach contains about 5.25 % sodium hypochlorite (a form of chlorine). Chlorine is used to treat municipal water supplies and is very effective in killing bacteria and certain viruses.

The term "shock chlorination" is very descriptive, since concentrations of chlorine ranging from 50 to 200 parts per million (ppm) are used in the procedure. This is many times the amount of chlorine used in municipal water supplies. In addition to killing potentially harmful bacteria and viruses, a "super shock chlorination" (greater than 800 ppm hypochlorite) can also be effective in reducing iron bacteria. Iron bacteria are naturally occurring and do not cause disease, but do form a reddish-brown slime (ferric hydroxide) that coats the inside of pipes and plumbing fixtures. These deposits may clog watering devices which have small openings and reduce performance of pumps. Iron bacteria should not be confused with dissolved iron in water. Dissolved iron causes red stains on clothing and plumbing fixtures and is not usually affected by shock chlorination.

While municipal water supplies always have low levels of chlorine present to kill bacteria, the shock chlorination procedure is used to disinfect private water supplies on an "as-needed" basis. Once the "shocking period (12-24 hours) is over, the highly chlorinated water is flushed from the plumbing

system onto the ground using outdoor faucets. Household water use should be kept to an absolute minimum during the shock chlorination procedure.

The amount of water in a well determines the amount of chlorine solution needed for proper disinfection. The following table lists the proper amounts of common laundry bleach to use for shock chlorination, based on the diameter of the well and the height of the water column in the well.

Amount of Laundry Bleach Needed for Shock Chlorination					
Water Height	4" Diameter	6" Diameter	8" Diameter	10" Diameter	12" Diameter
10 Feet	½ Cup	1 Cup	1 ½ Cups	1 Pint	1 Quart
25 Feet	1 Cup	1 Pint	1 Quart	1 ½ Quarts	2 ¼ Quarts
50 Feet	1 Pint	1 Quart	2 Quarts	3 Quarts	1 Gallon
100 feet	1 Quart	2 Quarts	1 Gallon	1 ½ Gallons	2 Gallons
150 Feet	1 ½ Quarts	3 Quarts	1 ½ Gallons	2 Gallons	3 Gallons

For "super shock chlorination," multiply the values in the preceding table by 8 to obtain a concentration of 800 ppm of available chlorine.

Before You Begin

< **DO NOT** chlorinate activated carbon or charcoal filters. These filters will adsorb the chlorine, greatly reducing the life of the filter. If an activated carbon filter is in place, turn the selector valve tot he "Bypass" position before beginning the shock chlorination procedure. This routes the highly chlorinated water around the filter. After the shock chlorination procedure is complete, turn the selector valve to the "On" position to continue normal operation of the filter.

< Be careful when handling concentrated chlorine solutions. Wear rubber gloves, goggles, and a protective apron when handling chlorine solutions. If the chlorine solution accidently gets on your skin, flush the area immediately with clean water.

< **NEVER** mix chlorine solutions with other cleaning agents, especially ammonia, because toxic gases may be formed.

< Do not use "Fresh Scent" bleach or other scented laundry products to disinfect wells. Use the inexpensive "plain" laundry bleach with a 5.25% sodium hypochlorite content for disinfecting wells.

Shock Chlorination Procedure

1. Obtain and store enough drinking water to supply your household for at least 24 hours.

2. From the table above, determine the proper amount of laundry bleach needed to disinfect the well, and pour the bleach into a five gallon container.

3. Add water almost to the top of the five gallon bucket and mix with the bleach.
4. Pour the solution directly into the well.

5. Turn on the outdoor faucet nearest the well and let it run until a strong odor of chlorine is detected. (If no chlorine odor is detected, add bleach directly into the well until a chlorine odor is detected.)

6. Turn the faucet off.

7. Route a garden hose from the faucet to the well.

8. Attach a spray nozzle to the end of the hose and turn the faucet back on.

9. Thoroughly wash down the entire inside surface of the well casing with the sprayer nozzle for at least 10 minutes.

10. Turn the faucet off.

11. Turn on each of the remaining indoor and outdoor faucets one at a time until the chlorine odor is detected. Turn off each faucet as soon as the odor is detected. (This insures that the bacteria-killing chlorine solution is in all of the plumbing associated with the well.)

12. Let the chlorinated water stand in the water system pipes at least 12 hours, but preferable 24 hours. Do not drink the water from the well during this period. You may flush the toilets, but try to minimize the number of flushes. It is helpful to post reminders on the faucets for people not to use them.

13. After the chlorinated water has remained in the pipes the prescribed amount of time. Completely flush the system of remaining chlorine by turning on all of the outdoor faucets and letting them run until the chlorine smell dissipates. (Do not turn on any of the indoor faucet until the chlorine smell dissipates from the outdoor faucets. This will prevent large doses of chlorine from entering the septic tank and causing damage to it.)

14. After the chlorine smell has dissipated from the outdoor faucets, turn on the indoor faucets and allow them to run until the chlorine smell dissipates. The water system is now completely flushed and ready for normal usage. (A residual chlorine odor and taste may persist for a few days.)

After disinfecting the well, have the water tested for Total Coliform Bacteria. If the bacteria test is positive, the well may need to be re-treated.